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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,478	09/13/2004	Kazunari Domen	Tan-344	6750
35777	7590	05/18/2006		
SHERMAN & ASSOCIATES 415 NORTH ALFRED STREET ALEXANDRIA, VA 22314			EXAMINER FIORITO, JAMES	
			ART UNIT	PAPER NUMBER

1754

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/507,478

Applicant(s)

DOMEN ET AL.

Examiner

James A. Fiorito

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>9/13/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites, "adding and dissolving... hydrolyzing, polymerizing and self-assembled ... to produce a sol solution". It is indefinite as to what is being added and dissolved, the transition metal salt or metal alkoxide. Also, it is indefinite as to what is being hydrolyzed, polymerized and self-assembled.

Claim Rejections - 35 USC § 102

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(a) or 102(b) as being anticipated by Byonjin et al ("Synthesis of high surface area microporous niobium oxide using neutral template and characterization").

Examiner notes the applicant admits the Catalytic Society published "Synthesis of high surface area microporous niobium oxide using neutral template and characterization" on September 20, 2001 (1.132 Declaration, Paragraph 2).

Byonjin discloses a method for preparation of transition metal oxide having micro-mesoporous structure whose average fine pore size is not less than 1 nm and not more than 2 nm comprising, adding and dissolving transition metal salt which is a precursor of transition metal oxide prepared by dissolving polymer surfactant in organic solvent, hydrolyzing, polymerizing and self-assembled the transition metal salt to produce sol solution, and then obtaining framework-stabilized gel from the sol solution, and removing the polymer surfactant by using water at room temperature. The surface area of transition metal oxide having mesoporous structure is from 100 m²/g to 500 m²/g (Pages 1-2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinnavaia '034.

A method for preparation of transition metal oxide having micro-mesoporous structure comprising, adding and dissolving transition metal salt which is a precursor of transition metal oxide and/or metal alkoxide in the solution prepared by dissolving polymer surfactant in organic solvent, hydrolyzing, polymerizing and self-assembled the transition metal salt and/or metal alkoxide to produce sol solution, and then obtaining framework-stabilized gel from the sol solution, and removing the polymer surfactant by

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using water at room temperature (Column 9-10). Pinnavaia discloses that the polyethylene oxide-based surfactants may be used (Column 23, Example 19)

Pinnavaia does not expressly state that average fine pore size is not less than 1 nm and not more than 2 nm and surface area of transition metal oxide having mesoporous structure is from 100 m²/g to 500 m²/g. However, it appears the process steps are the same. Therefore, the product would have an average fine pore size, which is not less than 1 nm and not more than 2 nm and a surface area of transition metal oxide having mesoporous structure from 100 m²/g to 500 m²/g.

Allowable Subject Matter

Claims 3-4, and 6-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Ying '367 teaches methods for preparing porous metal oxides. Balkus '170 teaches mesoporous compositions and method of preparation.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Fiorito whose telephone number is (571)272-7426. The examiner can normally be reached on Standard.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James Fiorito
Patent Examiner
AU 1754

JF


Steven Bos
Primary Patent Examiner
AU 1754